

Long Island Botanical Society

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The Quarterly Newsletter

Summer 2010

Inventory of the Seaweeds of Lake Montauk

Montauk, East Hampton Town, Suffolk County, New York

Larry B. Liddle¹ and Mark Abramson²

The purpose of this project was to assess the diversity of seaweeds in Lake Montauk (41.0601 N -71.9206 W), NY. It is part of a broader initiative to document the biota of the “lake” which is now a marine cove. Seaweeds were collected monthly by dredging and wading in the low tide at five locations from 10 October 2009 until 20 May 2010. Specimens were pressed and dried on herbarium paper using the facilities of the East Hampton Town Shellfish Hatchery Laboratory in Montauk. All the pressed specimens have been optically scanned using a Konica Minolta copy machine with 600dpi and saved in Portable Document Format (PDF) to provide a digital record as well. Both the pressed specimens and PDF images represent a permanent record. Where the herbarium will be housed is still to be determined.

Lake Montauk is of particular interest because it was once the largest freshwater lake in Long Island, more than double the size of Lake Ronkonkoma (Penny 2010). It is a 900-acre (360 ha) embayment that is home to the largest commercial and sport fishing fleets in the state of New York. The lake (originally referred to as Lake Wyandanch and commonly referred to as the “Great Lake”) was a freshwater lake until 1927 when developer Carl Fisher opened an inlet at the northern shoreline to connect it to Block Island Sound and the open waters of the Atlantic Ocean.

The rich seaweed flora of Lake Montauk has many of the characteristic species of the northeast coast of North America. For example, all species found in Lake Montauk

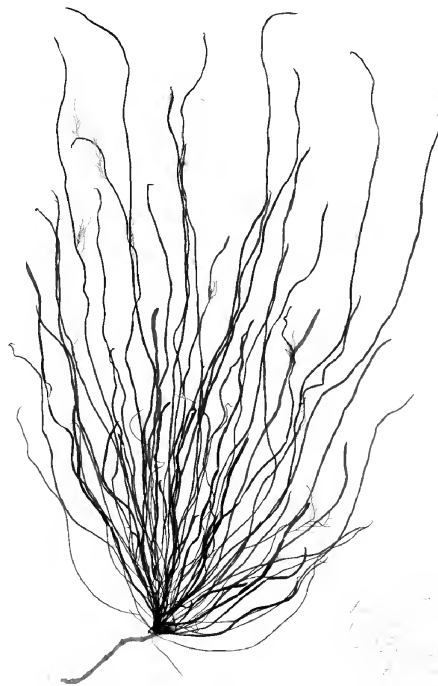


Fig. 1 *Scytosiphon lomentaria* gametophyte, a winter phase.

are also observed at Montauk Point which is considered to be the most characteristic northern marine habitat of Long Island. For example, large brown kelps are cold water species. They grow on solid substrate in the high subtidal zone in Lake Montauk. The kelp species, *Laminaria saccharina*, *Laminaria digitata* and *Halosiphon tomentosus*, were all observed on the eastern side of the inlet. The drift seaweeds indicate a rich subtidal flora, especially of red algae. However, certain species are conspicuously absent such as the calcified red algae, *Corallina officinalis*, which is abundant at Montauk Point.

Of special interest are the seasonal and introduced species. During the collecting period the water temperatures dropped from 20° C in early October to 6°C in January and the day length from 12L:12D to 9L:15D. Temperature and photoperiod are critical for timing the complex life histories of some seaweeds (Bold and Wynne 1985). During this time period of short days, low light intensity and low temperature, the winter blade gametophyte stages of *Petalonia* and *Scytosiphon* (Figure 1) appeared and with each collection the specimens became larger. By January no truly large specimens were yet observed. By March, however, large fully mature specimens were collected and they continue to be abundant through the spring season. Other wintertime

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¹ Professor Emeritus, Long Island University.

larry.liddle@gmail.com ²Senior Environmental Analyst for the East Hampton Town Natural Resources Department.
mabramson@town.east-hampton.ny.us

Long Island Botanical Society

Founded: 1986
Incorporated: 1989

The Long Island Botanical Society is dedicated to the promotion of field botany and a greater understanding of the plants that grow wild on Long Island, New York.

Visit the Society's Web site
www.libotanical.org

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Society News

FIELD TRIP CHAIR NEEDED

Field trips have traditionally been one of the most important offerings of the Long Island Botanical Society. Many of us have benefited from these opportunities to botanize in some of Long Island's spectacular natural areas. The Field Trip Committee plans 2 to 5 field trips each quarter, often in conjunction with the Torrey Botanical Club. However, at this point, the committee lacks a chair, and field trips are not being offered this summer.

LIBS thanks outgoing field trip chair, James Mickley, for his service and wishes him well as he relocates to Connecticut.

If you are interested in serving on the committee, please contact LIBS President, Eric Lamont.

25TH BIRTHDAY!

LIBS will soon be twenty-five years old! And to celebrate we are planning a trip to Florida next spring, from Tallahassee at the top to Fakahatchee at the bottom. It is planned that up to twenty of us will fly to Tallahassee on Wed. Mar. 30th 2011, where Ann Johnson, longtime LIBS member, will guide us around Torreya State Park and the Pitcher Plant bogs of the Apalachicola National Forest. The next day we'll stop at Fanning Springs as we drive to Sebring for the night. On April 3rd we'll admire the forest at Highlands Hammock State Park in the morning and in the afternoon the unique scrub area of Archbold Biological Station, where Ann completed her doctorate on the rosemary balds.

We'll then settle into Ft. Myers for five nights, taking a day of rest on April 4th at Barbara Conolly's home on Sanibel Island. The following day we'll go to J. N. "Ding" Darling National Wildlife Refuge, trying not to get totally caught up in the birds so that we can take in the unique flora on the shell mound there, followed by a visit to the shore at Bowman's Beach.

April 6th will see us driving down to the Fakahatchee Strand in search of wild orchids, and on April 7th, our final day in the field we'll visit Corkscrew Swamp Sanctuary. On April 8th we'll fly home from the Ft. Myers International Airport, knowing a lot more than we did before we came about the plants and flowers of Florida!

Barbara Conolly

LIBS Member Electronic Mailing List

LIBS is creating an electronic mailing list (an email and telephone list) so that our members can better stay in touch with each other. The list is for members' use only and will not be distributed in any way.

To join the list, please send an email to Joanne Tow at

BOTANY2003@HOTMAIL.COM

Subject line: LIBS. Message: your last name, first name, email, phone number, town and state.

(Seaweeds, Cont. from page 17)

species include gametophytes of *Porphyra umbilicalis*, a red alga, and the sporophytes of the browns, *Desmarestia aculeata* and *D. viridis*.

The giant unicellular green alga, *Codium fragile* (Figure 2), which was introduced to the Northeast coast and first observed in Greenport, 13 January 1957 (Bouck and Morgan 1957), is superabundant in Lake Montauk. It is a winter survivor, with heaps of it washed up on the shore and in the shallow subtidal zone in January. However, in the intertidal zone *Codium* fronds are essentially absent in mid-winter. Also the Asian foliose red alga, *Grateloupia turuturu* (syn. *G. doryphora*), reportedly introduced to Rhode Island from France in 1994 (Villard-Bohnsack and Harlin 1997) and first observed at Montauk Point in 2003 (personal observation), is now a perennial, seasonal, well-established part of the flora in Lake Montauk. It was not observed at certain expected locations as the water temperatures decreased, and was absent in late winter in the intertidal zone. No drift specimens have been found in the spring.

A total of at least 38 species of seaweed have been collected. However, clearly more species are present. Some genera include multiple species that either are difficult to identify without further study or are under study by specialists. Identification of the specimens has been strictly by morphology. However, since no chemical preservatives were used in the preparation of the herbarium specimens, they remain suitable for future detailed taxonomic studies using nucleic acid sequencing.

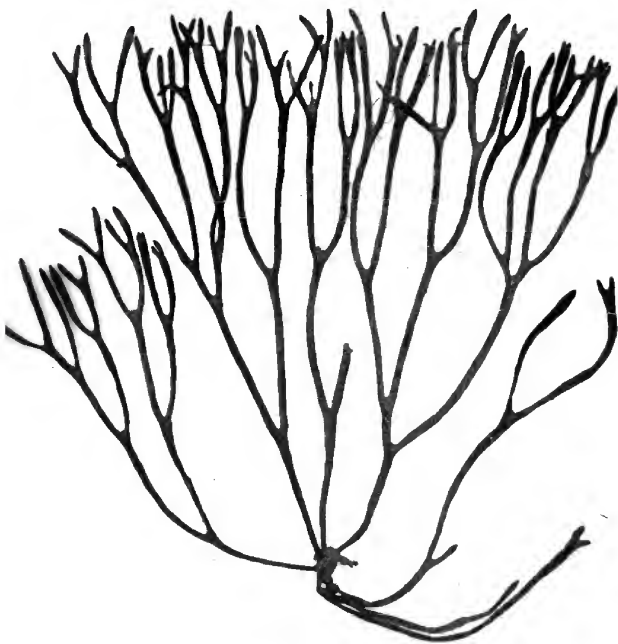


Fig. 2 *Codium fragile*, a giant unicell.

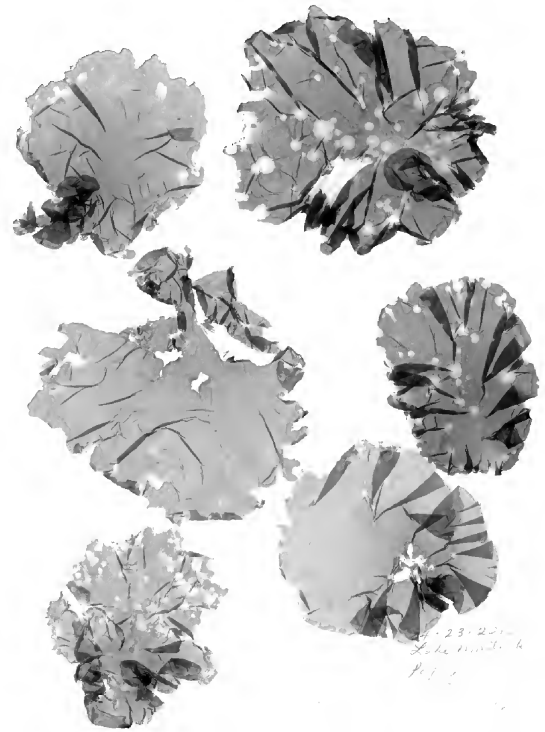


Fig. 3 *Porphyra umbilicalis* gametophytes, a winter phase.

References for identification include M. Villard-Bohnsack (2003) and W. R. Taylor (1940, 1957). The following is a list of the species collected:

Brown Algae, Phylum
Heterokontophyta or
Phaeophyta.

Ascophyllum nodosum
Desmarestia aculeata
D. viridis
Ectocarpus siliculosus
Fucus vesiculosus
Fucus distichus
Fucus edentatus
Halosiphon tomentosus
Laminaria digitata
Laminaria saccharina
Petalonia fascia
Sargassum filipendula
Scytosiphon lomentaria

Green Algae, Phylum
Chlorophyta

Codium fragile
Uva intestinalis
Uva lactuca
Uva prolifera

Red Algae, Phylum
Rhodophyta

Agardhiella subulata
Agardhiella tenera
Abnfeltia plicata
Ceramium sp.
Callithamnion baileyi
Champia parvula
Chondrus crispus
Coccolytus truncatus
(reproductive)
Cystoclonium purpureum
Dasya pedicellata
Gracilaria foliifera
Gracilaria tivabiae
Grateloupia turuturu
Grinellia americana
Palmaria palmata
Polysiphonia nigra
Polysiphonia stricta
Polysiphonia spp. (several)
Porphyra umbilicalis
Spermothamnion repens
Trililiella intricata

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(Seaweeds, Cont. from page 19)

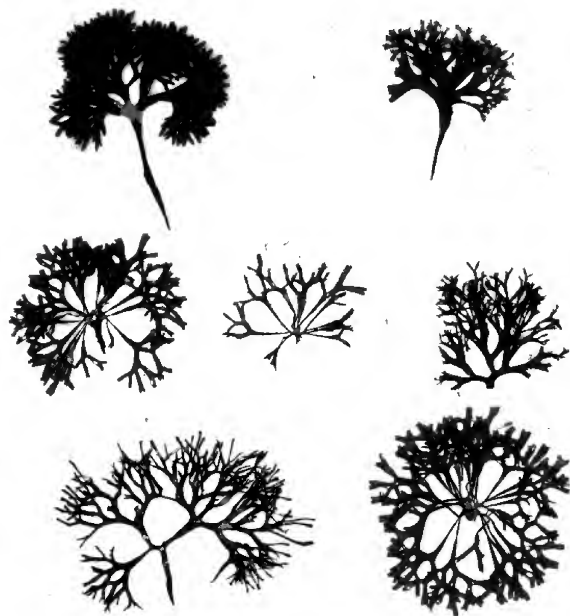


Fig. 4 *Chondrus crispus*, also called Irish Moss.

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Acknowledgements:

This inventory is part of the Lake Montauk Watershed Management Plan, coordinated by Larry Penny, the Director of the East Hampton Town Department of Natural Resources. It is a study-plan funded by the New York State Department of State Environmental Defense Fund. We are very grateful to John Aldred, Director of the East Hampton Town Shellfish Hatchery, for allowing us to use their facilities to hold freshly-collected specimens and for pressing the seaweeds. It made our work much more efficient.

IN OTHER NEWS

From the New York Flora Association Blog

<http://nyflora.wordpress.com/>

In Search of Long Island Rare Plants 1 – Silverweed:

This June 24 entry in the New York Flora Association Blog includes Steve Young's wonderful photographs from South Fork salt marshes and dunes including silverweed (*Argentina egedii* ssp. *groenlandica*), saltmarsh arrow-grass, (*Triglochin maritima*), blue flag (*Iris prismatica*), and pine-barren sandwort, (*Minuartia caroliniana*). LIBS members are urged to watch for Part 2 of this article.

Dragon's Mouth Orchid Rediscovered On Long Island:

It had been 25 long years since the state rare Dragon's Mouth Orchid (*Arethusa bulbosa*) was seen on Long Island. Kim Smith, New York Natural Heritage Program State Parks Botanist was bushwacking through some wet thickets in a state park in Suffolk County when she spotted just one plant of this rare orchid.

2010 Rare Plant Status Lists Now Available:

The 2010 Rare Plant Status Lists, edited by Steve Young, are now available from the New York Natural Heritage Program Botany Program. Go to www.nynhp.org and click on Rare Plant Information on the left side.

Some Field Trips and Events

Sponsored by Other Organizations

North Shore Land Alliance invites LIBS members to attend upcoming field trips. Contact (516) 626-0908 or andrea@northshorelandalliance.org

- Thursday, July 29, 6:30 p.m., Upper Francis Pond, Mill
- Saturday, September 11, 2 p.m.,
Louis C. Clark Sanctuary and James Preserve,
Old Brookville

Otto Heck will be leading a field trip for the New York Chapter of the American Fern Society on Sat. Sept. 18, 2010 at Dunnfield Creek in New Jersey.

From July 31 to August 4, the Botanical Society of America is hosting its annual conference in Providence, Rhode Island. <http://www.2010.botanyconference.org/>

Your Contributions Wanted

....for the LIBS Newsletter

Please email your articles, poems,
photographs and drawings to

Margaret Conover: mcon@optonline.net or

Mail them to LIBS, PO Box 507
Aquebogue, NY 11931

A study of Paumanok Wetland Long Island, NY: Historical Biogeography, and Current Conditions

Matthew Pace

Curatorial Assistant, The New York Botanical Garden

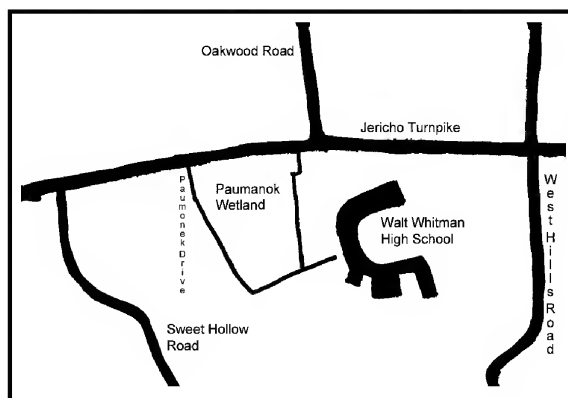
Found on the north-facing slopes of the Ronkonkoma moraine, Paumanok Wetland is a 4.13 ha oak-hickory woodland and red maple wetland containing two vernal pools. Located in the West Hills section of Huntington Station Long Island, it lies directly west of Walt Whitman High School. Once threatened with being cleared to make way for the 122-bed Camelot Village Congregate Care facility, the site was jointly purchased in 2004 by the Town of Huntington and Suffolk County, setting it aside as a preserve. According to the Town of Huntington and Environmental Open Space and Park Fund [EOSPA], the future of the preserve involves “implementation of an ‘outdoor classroom’ plan for the property” (Town of Huntington and EOSPA 2008).

As part of a floristic study of the woodland conducted from 2008-09, the historical biogeography of the site and surrounding area was researched to determine if the modern woodland represents the original composition of the area and how it has changed over time. The full study has been submitted to the Journal of the Torrey Botanical Society.

VEGETATION AND HUMAN HISTORY. The majority of western Long Island’s original forests belonged to the “Sprout Forests” of the Oak-Chestnut Forest Region. The region in which Paumanok Wetland is located most likely falls into either the “Oak or Oak-Hickory Forest Type” or the “Oak-Chestnut Forest Type” (Braun 1950). Native Peoples have inhabited Long Island since shortly after the glacial retreat; at the time of European contact the Matinecock tribe was present in the area of modern Huntington. The Matinecock influenced the woodland communities through the use of fire to encourage the frequency of game and clear land for agriculture (Wood in Pelletreau 1898), which led to the development of open grassy areas and supported the dominance or co-dominance of oak (*Quercus*) in the surrounding forests.

The Town of Huntington was founded in 1653 and by 1670 farms reached the West Hills area of South Huntington. As a result of the Matinecock-initiated fires, early European colonists of Huntington reported “the large trees were so scarce, that it was deemed necessary to preserve them from waste, and to prescribe means for their preservation.” In 1659 it was voted that the woods would remain uncut within three miles of the town “under penalty of five shillings for every tree.” An

exception was made the next year for “white oak timber.” This exception was revoked in 1668 after it was thought “that the town was in danger of being ruined by the destruction of its timber” (Wood in Pelletreau 1898). A vote by the Constable and Overseers of Huntington in 1667 ordered selected men of the town “at such a season as they doth judge fit fire and burne the woods” annually to stimulate new growth and rejuvenate the woods (Town of Huntington 1877). Cattle were pastured in the woods at this time.



Witness trees from a 1761 land deed in Huntington include walnut, red oak, black oak, and chestnut (Langhans 1985). Silas Wood writes: “The predominant timber on the north side and on the high lands is oak, hickory and chestnut, and with these is an intermixture

of various other kinds” (Wood in Pelletreau 1898). Nichols (1913) supports this description, as does Bowman (1911), listing “chestnut, oak, elm, beech and locust” as the principal trees. Braun (1950) notes many localized variants due to differences in soil moisture and exposure, containing varying degrees of mesic influence. It is most likely that Paumanok Wetland is located in a transition zone within Braun’s Sprout Forest sub-types.

During the American Revolution the forests of northern Long Island were heavily timbered for use by the British (who controlled the area); many of the forests surrounding Huntington underwent clear cutting (Greller et al. 2005). Tree growth returned within several years after the war’s end, and the practice of cutting and regeneration on a thirty-year cycle was adopted as the management style for the woods until at least the mid-1800’s (Wood in Pelletreau 1898). West Hills was known from the mid-1800’s as a place of great natural beauty, having been described as “nature at its supremacy ... nowhere is woodland more sublime. Visit the hills in dogwood time. Nowhere is spring as vivid, nor the touch of quaintness as striking as here ... [note] the red and pink of the oaks, the dogwood” (Merritt 1925).

An 1836 U.S. Coast Survey Map shows the land presumably containing the current Paumanok Wetland to be owned by John Brush; the westerly land is denoted as being composed of trees and fields while the land to the east is blank, indicating

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(*Paumanok, Cont. from page 21*)

cleared agricultural land. The land remained in his family until at least 1873. During the early 1900's and continuing into the 1920's construction of estates and homes for wealthy families altered the landscape through the thinning of what woodland remained or had reclaimed abandoned farms (Greller and Clemants 2001). The summit of Jayne's Hill was maintained as pastureland while the slopes began to revert to woodland (Blizzard 1931). A topographic map surveyed by the U.S. Geologic Survey in 1901 for the first time clearly depicts a pond present at the site of Paumanok Wetland. The pond present in the 1901 map is still present on a 1917 map. The land encompassing Paumanok Wetland, as well as a large parcel directly to the north of Jericho Turnpike is specified as being owned by Henry Jones. The portion of land to the west of Paumanok Wetland is part of a 522 ha. holding of R. W. De Forest. A strip of land between Mr. De Forest and Mr. Jones is owned by Henry E. Coe. The land of Paumanok Wetland is still owned by "H. Jones" on a 1931 parcel map.

The increased development and clearing of land in the early 1900's co-occurred with the initial effects of chestnut blight (*Cryphonectria parasitica*), introduced into New York City in 1904. Chestnut blight infected the area surrounding Huntington by at least 1909, leading to the absence of *Castanea dentata* in the modern canopy (Anagnostakis 2007).

MODERN FLORA. Today, the woodland is composed of 136 species. Eighty one species (60%) are native to New York state and 55 species (40%) are exotics. Thirty species (22%) are listed on the New York State Early Detection Invasive Plants by Region list for the LIISMA (Long Island Invasive Species Management Area) Region. All of the tree species mentioned in the historical record are found within the woodland. The canopy types are described as White Oak – Black Oak – Northern Red Oak (Society of American Foresters (SAF) type #52) with a gradation into Red Maple (SAF type #108) (Eyre 1980).

The woodland as a whole can be subdivided into five sub-regions which reflect their past and current community make-up and land-use history: Oak-Hickory non-disturbed; Oak-Hickory disturbed; Red Maple wetland; Red Maple disturbed; Edges. *Acer rubrum*, *Carya tomentosa*, *Carya glabra*, *Quercus velutina*, *Quercus rubra*, and *Quercus alba* are the dominant canopy trees and *Lindera benzoin* the dominant shrub layer species. Spring ephemerals and dense stands of ferns are common. Based on the large size of many canopy sized trees (oak up to 97cm dbh, beech up to 84cm dbh) and the presence of *Castanea dentata* stump suckers, a conservative estimate for the age of the woodland is between 94 and 102 years old, though individual trees may be up to 200 years old. Small fragments of old growth *Nyssa sylvatica* in situations similar to those occurring at Paumanok Wetland can be found nearby in West Hills Nature

Preserve and in a private plot on Sweet Hollow Road (Karpen et al. 2004).

An unusually large population of *Acer saccharum* (Sugar Maple) is found over a large area at the center of the woodland within the oak-hickory disturbed subsection. Though *A. saccharum* is occasionally found in the area, a census of all tree stems in the woodland finds 369 stems from seedling to canopy size (to compare, *Quercus rubra* is represented by 56 total stems, and *Carya tomentosa* is represented by 221 stems). Of the sugar maple population, 99% are sub-canopy trees. This large population size may be due to a combination of mesic conditions found in Paumanok Wetland when compared to more xeric oak forests in the area, and past disturbances caused by the incursions of trucks. The high shade tolerance of *Acer saccharum* gives it an advantage over the shade intolerant *Quercus spp.* Additionally, Paumanok Wetland contains large populations of invasive exotics, the most serious being *Acer platanoides* and *Aralia elata*. Both species are spread throughout the areas of the woodland dominated by *Quercus* and *Carya* in the canopy. The effects of *Acer platanoides* are well documented (Wyckoff and Webb 1996). It is unclear how *Aralia elata* affects native species or how this species can be controlled, as it is possible that fire or selective removal will only increase the population since *Aralia* is able to resprout from roots.

In its current condition, Paumanok Wetland is a good representation of the original forest cover of Huntington and contains large populations of many locally uncommon herbaceous species such as *Erythronium americanum*. Without human intervention, the populations of *Quercus* and *Carya* will persist; however, both are threatened from large populations of shade tolerant *Acer rubrum* and *A. saccharum*, as well as invasive species. Restoration efforts must be undertaken before an event such as a blow-down associated with a hurricane causes significant disturbances, leading to a major canopy change.

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(Cont. on page 23)

TO THE EDITOR:

I wrote in my article that *Microstegium vimenum* did not seem to be the right name for a grass in Muttontown. Now I find it is correct, and *Leersia* is not correct. I visited the Herbarium at Planting Fields. I found the "rice grass" *Leersia* there, with grains much larger than the one at Muttontown. Then I found a specimen of the *Microstegium* with a letter that the local subspecies does indeed have awns. How do I get a correction in LIBS?

Marian Hubbard

(Ed. Note: This correspondence will serve as a correction to the Marian's article, Ah, Grasses, Long Island Bot. Soc. Newsl. 20: 9, 11-12.)

Ray Welch reports that he has discovered back issues of the Bulletin of the Torrey Botanical Club online at <http://www.biodiversitylibrary.org/item/7988#1>. He also notes that one of his articles, *The Summit Vegetation of Long Island*, published in the January 1999 LIBS Newsletter, has been cited online in the Wikipedia entry about Jayne's Hill.

Tom Stock writes, "I have been fondling a large population of ebony spleenwort on vacant land right east of my house in Manorville. Estimated 75 plants in the community. I've flagged them with metal rods and white plastic tags, and scattered hard clam shells near them as a source of calcium. The population has grown over the past ten years that I've been checking."

Larry Liddle reports that the Sag Harbor Historical Society's latest exhibition, History of Long Beach, includes the first-time showing of Annie Cooper Boyd's 19th century collection of pressed local seaweeds. Open weekends July 3 through Sept. 12th.

I'm attaching a picture I took today of bird's foot violets. They were located along the grassy shoulder of the Sunrise Highway's Service Road. If you are traveling from east to west on Sunrise Highway, get off at x-54 Hospital Rd. Go over the bridge and turn left at the light there. You will then be on the Sunrise Highway Service Road traveling west. The flowers were on the north side a very short distance from the traffic light and there were many, **John Heidecker** 4/24/2010

REQUESTS

Volunteers Needed for Sandplain Gerardia Survey. Steve Young of the New York Natural Heritage Program will be surveying new locations for the federally listed plant *Agalinis acuta* in late August and early September. He will be making an element distribution model for the species using GIS that will predict new locations for the species based upon where it occurs now. Steve would like some volunteers to help survey predicted locations or to accompany him on surveys to provide more eyes to look for the plant. If you would like to volunteer for this project let Steve know at: syoung@tnc.org

Knapweed and Knotweed Sites Needed. I am writing to request your help through the Long Island Botanical Society for locating field study sites for two invasive species on Long Island: *Centaurea diffusa* (Diffuse knapweed) and *Fallopia japonica* (Japanese knotweed). They are for two separate research projects by my students. Also, the third student of mine is looking for large honey locust trees in the metropolitan area, so that he can collect seed pods for his research. Dr. Wei Fang, Long Island University-C.W.Post, 516-299-3029, wei.fang@liu.edu

(Paumanok References, Cont. from page 22)

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UPCOMING PROGRAMS

September 14, 2010* Tuesday, 7:30 PM

Susan K. Pell: "The Cashew Family (Anacardiaceae): Fruits, Genes and Dermatitis."

Anacardiaceae includes many familiar edibles including cashews, pistachios, mangos, and pink peppercorns, but is more notorious for its contact dermatitis-causing members, including poison ivy and poison oak. This lecture will present an overview of the family from our local sumac species to the characters that distinguish Anacardiaceae. Recent research on its evolution will be highlighted with an explanation of the taxonomic, biogeographic, and morphological implications of the results. Susan earned her Ph.D. in Plant Biology from Louisiana State University studying the systematics of the cashew family (Anacardiaceae). She has continued this research as the Plant Molecular Systematist and Laboratory Manager at Brooklyn Botanic Garden (BBG), where she also teaches botany courses through Continuing Education. In addition to her duties at BBG, she serves as the Program Chair and Corresponding Secretary for the Torrey Botanical Society and as the Continuing Education Botany Program Coordinator at the New York Botanical Garden.

Location: Bill Paterson Nature Center, Muttontown Preserve, East Norwich

October 12, 2010* Tuesday, 7:30 PM

Margaret Conover: "Botanical Reflections: from Peck's Woods to *Petermannia*."

From her childhood in Harmony Corners, Wisconsin, Dr. Conover has travelled to all the corners of the world to pursue her interest in botany. This talk will be illustrated with her botanical photographs from the remote areas of Iceland, Malaysia, Australia, Scotland, and Long Island. Spring ephemerals, apical meristems, island biogeography, big trees, leaf venation patterns, recalcitrant houseplants, and green aliens are among the topics she will address. Margaret is editor of the LIBS newsletter and a part-time researcher and teacher at the New York Botanical Garden and Stony Brook University.

Location: Museum of Long Island Natural Sciences, Earth and Space Science Building, Gil Hanson Room (Room 123), Stony Brook University

* Refreshments and informal talk begin at 7:30 p.m.
Formal meeting starts at 8:00 p.m.

Directions to Muttontown or Stony Brook: 516-354-6506